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**United States Patent** [19]**Gengler et al.**[11] **Patent Number:** **6,158,523**[45] **Date of Patent:** **Dec. 12, 2000**[54] **AGRICULTURAL DISC MOUNTING SYSTEM AND METHOD**[75] **Inventors:** Ailan S. Gengler, Beloit; Bradley A. Heldrick, Simpson; Jeffrey S. Hughes, Glen Elder, all of Kans.[73] **Assignee:** Sunflower Manufacturing Co., Inc., Beloit, Kans.[21] **Appl. No.:** 09/183,360[22] **Filed:** Oct. 30, 1998[51] **Int. Cl.<sup>7</sup>** ..... A01B 35/28[52] **U.S. Cl.** ..... 172/574; 172/572; 172/573; 172/708; 172/711[58] **Field of Search** ..... 172/572, 708, 172/570, 707, 705, 711, 573, 500, 574, 643; 267/158, 164, 47[56] **References Cited****U.S. PATENT DOCUMENTS**

889,486	6/1908	Ross .	
928,029	7/1909	Craig	172/572
1,529,042	3/1925	Teasley et al.	172/599
2,211,675	8/1940	Rushbrook	172/572
2,750,861	6/1956	Erwin .	
3,058,531	10/1962	Beaman et al.	172/15
3,640,348	2/1972	Womble	172/573
3,967,685	7/1976	Siekmeier .	
4,066,132	1/1978	Rehn	172/572
4,333,535	6/1982	Hentrich, Sr.	172/572
4,407,372	10/1983	Rozeboom	172/572
4,428,437	1/1984	Steinberg	172/572 X
4,520,875	6/1985	Deckler	172/572 X
4,683,958	8/1987	Malinowski et al.	172/705
4,724,910	2/1988	Wheeler	172/464
4,759,411	7/1988	Williamson	172/572
5,042,590	8/1991	Bierl et al. .	
5,267,619	12/1993	Eversole .	
5,785,129	7/1998	Keller et al.	172/572 X

**OTHER PUBLICATIONS**

Sales Literature of Brillion Iron Works, Inc. of Brillion, Wisconsin for Soil Commander, exact publication date unknown, but at least one year prior to the filing of the present application.

Sales Literature of DMI, Inc. of Goodfield, Illinois for conservation yield-till tools Model 530, exact publication date unknown, but at least one year prior to the filing of the present application.

Sales Literature of Krause Corporation of Hutchinson, Kansas for disc and deep till in one-pass, exact publication date unknown, but at least one year prior to the filing of the present application.

Sales Literature of Landoll Corporation of Marysville, Kansas for Weatherproofer II disc and deep-till, exact publication date unknown, but at least one year prior to the filing of the present application.

Sales Literature of Sunflower Manufacturing Co., Inc. of Beloit, Kansas for Series 4000 Deep Tillage, exact publication date unknown, but at least one year prior to the filing of the present application.

Sales Literature of Sunflower Manufacturing Co., Inc. of Beloit, Kansas for Series 4311 Disc-Ripper, exact publication date unknown, but at least one year prior to the filing of the present application.

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[57] **ABSTRACT**

A disc mounting system includes the attachment of each disc to a disc gang bar via a dedicated leaf spring. Each of the leaf springs, which can be generally U shaped, are attached at a top end to the gang bar and at a lower leg to a disc spindle such that the disc is positioned at least partially alongside the spring lower leg. The mounting system allows the disc to deflect vertically, laterally or torsionally when the disc encounters an obstacle. An optional shield can be attached to the leaf spring to prevent soil and debris thrown out by adjacent discs from entering the spring. A disc scraper blade can also be attached to the shield.

**37 Claims, 4 Drawing Sheets**